

Serial No.: 10/597123

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NEWS 13 FEB 06 Patent sequence location (PSL) data added to USGENE
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NEWS 15 FEB 11 WTEXTILES reloaded and enhanced
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FILE COVERS 1907 - 19 Feb 2009 VOL 150 ISS 8
FILE LAST UPDATED: 18 Feb 2009 (20090218/ED)

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```
=> s (tert (w) butanol) (s) solvent
    289064 TERT
      22 TERTS
    289068 TERT
      (TERT OR TERTS)
    74393 BUTANOL
      965 BUTANOLS
    74724 BUTANOL
      (BUTANOL OR BUTANOLS)
    770099 SOLVENT
    368060 SOLVENTS
    960315 SOLVENT
      (SOLVENT OR SOLVENTS)
L1      1152 (TERT (W) BUTANOL) (S) SOLVENT

=> s l1 and tranesterif?
```

40 TRANESTERIF?
L2 0 L1 AND TRANESTERIF?

=> s l1 and esterification
106659 ESTERIFICATION
623 ESTERIFICATIONS
106826 ESTERIFICATION
(ESTERIFICATION OR ESTERIFICATIONS)

L3 43 L1 AND ESTERIFICATION

=> s l3 and (fat# or oil#)
334864 FAT#
993936 OIL#

L4 3 L3 AND (FAT# OR OIL#)

=> d l4 1-3 ibib abs

L4 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:1474266 CAPLUS

DOCUMENT NUMBER: 150:101745

TITLE: Comparison of Novozym 435 and Amberlyst 15 as
Heterogeneous Catalyst for Production of Biodiesel
from Palm Fatty Acid Distillate

AUTHOR(S): Talukder, M. M. Rahman; Wu, J. C.; Lau, S. K.; Cui, L.
C.; Shimin, G.; Lim, A.

CORPORATE SOURCE: Institute of Chemical and Engineering Sciences, Jurong
Island, Singapore, 627833, Singapore

SOURCE: Energy & Fuels (2008), 23(1), 1-4

CODEN: ENFUEM; ISSN: 0887-0624

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Palm fatty acid distillate (PFAD), a byproduct from the palm oil
refinery process, has been used as an alternative feedstock for biodiesel
(BD) production via homogeneous acid-catalyzed esterification. This
process suffers from poor catalyst recovery, wastewater treatment and BD
purification. To minimize the problem, heterogeneous catalysts, Novozym 435
(immobilized *Candida antarctica* lipase B) and Amberlyst 15 (acidic
styrene-divinylbenzene sulfonated ion-exchange resin), were tested and
their catalytic activities under various reaction conditions are compared.
Novozym 435 acts fast and its optimal specific activity (g BD/h/g
catalyst) is 50 times higher than that of Amberlyst 15. The maximum BD
yields obtained using Novozym 435 and Amberlyst 15 are 95 and 97%, resp.
Both catalysts are recycled >15 cycles without losing their activities.
Probably both Novozym 435 and Amberlyst 15 can be used for BD production from
PFAD.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:1474809 CAPLUS

DOCUMENT NUMBER: 148:288256

TITLE: *Rhizopus oryzae* Whole-Cell-Catalyzed Biodiesel
Production from Oleic Acid in tert-Butanol Medium

AUTHOR(S): Li, Wei; Du, Wei; Liu, Dehua

CORPORATE SOURCE: Department of Chemical Engineering, Tsinghua
University, Beijing, 100084, Peop. Rep. China

SOURCE: Energy & Fuels (2008), 22(1), 155-158
 CODEN: ENFUEM; ISSN: 0887-0624
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB During the usage of *Rhizopus oryzae* whole cell instead of immobilized enzyme for biodiesel production, the intracellular lipase has 1,3-positional specificity when used to catalyze methanolysis of triglycerides. Thus, the application of *R. oryzae* whole cell in biodiesel production from triglycerides is restrained to some extent. However, it might be a promising catalyst for biodiesel production from free fatty acids (FFAs). *R. oryzae* IFO4697 whole cell [immobilized within biomass support particles (BSPs)] catalyzed biodiesel production from oleic acid was studied systematically. In a tert-butanol system, *R. oryzae* whole cell exhibited both better methanol endurance and better stability than that in a solvent-free system. Mol. sieves (3 A) were added into the reaction mixture to online remove the produced water, and a much higher biodiesel yield could be achieved (biodiesel yield reached 90% at 48 h).

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1987:476138 CAPLUS
 DOCUMENT NUMBER: 107:76138
 ORIGINAL REFERENCE NO.: 107:12529a,12532a
 TITLE: Enzymic manufacture of diglycerides
 INVENTOR(S): Tsunoda, Akira; Kokusho, Sumitaka; Machida, Haruo; Iwasaki, Shinjiro
 PATENT ASSIGNEE(S): Meito Sangyo Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62025987	A	19870203	JP 1985-162966	19850725
PRIORITY APPLN. INFO.:			JP 1985-162966	19850725

AB A mixture containing glycerin (0.5-1.0 mol) and 1 mol C4-22 saturated or unsatd. fatty acids or their C1-3 alc. esters is subjected to dehydration (to <1% water content) and reacted with alkaline lipase from microorganisms in the presence or absence of an organic solvent (with exception of primary alcs.) to produce diglycerides in high yield. Thus, oleic acid 10, glycerin 1.96, PL679 lipase 3, mol. sieves 3A 20 g, and 100 mL Me3COH, were reacted at 40° for 72 h with shaking. After centrifugation, the supernatant was concentrated to obtain 10.5 g glycerin oleate. The glycerin oleate composition consisted of 23% glycerin monooleate, 50% glycerin dioleate (45% glycerin 1,3-dioleate, 13% glycerin 1,2-dioleate) and 9% glycerin trioleate.

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FILE 'CAPLUS' ENTERED AT 17:18:04 ON 19 FEB 2009

L1 1152 S (TERT (W) BUTANOL) (S) SOLVENT
L2 0 S L1 AND TRANESTERIF?
L3 43 S L1 AND ESTERIFICATION
L4 3 S L3 AND (FAT# OR OIL#)

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